

Evaluating the need for an ice rescue program within the Ashland Fire Department

By: Gabe Campbell
Captain
Ashland Fire Department
274 Cleveland Ave
Ashland, OH 44805

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CERTIFICATION STATEMENT

I hereby certify that the following statements are true:

1. This paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

2. I have affirmed the use of proper spelling and grammar in this document by using the spell and grammar check functions of a word processing software program and correcting the errors as suggested by the program.

Signed: _____

Printed Name: ___Gabe Campbell_____

ABSTRACT

The problem addressed was despite the potential for an ice rescue within the county, the Ashland Fire Department (AFD) is not trained or equipped to handle a surface ice rescue. This study's purpose was to determine the need for an organized ice rescue program. Through a combination of descriptive and action research, the following questions were addressed: 1) what is the frequency and potential of ice related incidents within Ashland County, 2) what programs or policies regarding surface ice rescue are implemented at fire departments within the county, and 3) what are the cost and training requirements of establishing a program? All research data was obtained from Internet searches, libraries, AFD annual reports, interviews, and the survey results of the eleven fire departments within the county. Results indicated that incidents do occur and that rapid rescue is essential for positive victim outcome. The survey found that the majority of departments within Ashland County are not prepared for an ice rescue. National Fire Protection Association (NFPA) sets forth the training requirements, and rapid rescues require technician level training. Recommendations included training and equipment for multiple departments, multi agency response to ice rescue incidents, and additional research concerning county wide water incident management.

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INTRODUCTION

Statement of the Problem

Every jurisdiction within Ashland County has some form of water. From small ponds to large bodies of water, if a fire department is located in an area that is conducive to freezing temperatures, that department is not exempt from situations wherein they may find themselves attempting a surface ice rescue.

Ashland Fire Department is certainly not exempt from this. According to the Water Resources of Ashland County (Amos, N'Jie, Brown, 1998), Ashland County's water acreage consists of approximately 1,438 acres of lakes, roughly 291 linear miles of major streams and rivers, and farm ponds numbering in the thousands. Annually, Northern Ohio has 127 days at or below freezing temperatures (Wikipedia, 2007 Annual Averages table). Even though in years past the AFD has not had an ice rescue incident in its primary coverage area or assisted a neighboring department with an ice rescue (Ashland Fire Department, 2000-2006), these two factors alone set the stage for an ice rescue.

The AFD is well trained in many facets of emergency service delivery, including technical rescue and hazardous materials. The department is at the ready with top notch equipment and high levels of training. AFD is utilized frequently by the 10 surrounding volunteer fire departments within Ashland County for mutual-aid in fire suppression, Emergency Medical Services (EMS), and technical rescue operations. This utilization is primarily due to our vast cache of specialized equipment, training, and rapid response time. The public perception of one call gets it all and gets it quick means that the AFD can face any variety of emergency situations, including an ice rescue.

Currently the AFD is operating under the perception that within Ashland County only two volunteer fire departments and the Park Rangers for the Muskingum Conservancy District, a private entity, are equipped with protective suits for ice rescue. Of these organizations, only two have conducted in house training, and none

of them have had any formal training in surface ice rescue techniques or standard operating procedures (Campbell, 2006) In 2006, AFD was utilized for mutual aid to assist departments within Ashland County 101 times (Ashland Fire Department, 2006).

As of this time, the AFD is unable to conduct a surface based ice rescue due to lack of training and equipment and can only attempt a shore based approach.

The problem this study will address is that despite the significant amount of water in the county, the inherent freezing temperatures, and the possibility of assisting neighboring departments in technical rescue operations, the Ashland Fire Department lacks formal training and necessary equipment to handle a surface ice rescue.

Purpose of the Study

The purpose of this study is to ascertain if there is a need for an organized ice rescue team within the Ashland Fire Department.

Research Questions

The following questions will be answered by a combination of descriptive and evaluative research:

1. What is the frequency and potential of ice related incidents in Ashland County?
2. What programs or policies regarding surface ice rescue are implemented at fire departments within Ashland County?
3. What are the training requirements and costs involved for establishing a surface ice rescue program?

BACKGROUND AND SIGNIFICANCE

It's difficult to accurately portray a history of significant events associated with ice and cold water immersion within Ashland County. As mentioned above, Ashland County has 1,438 acres of lakes (Amos, N'Jie, Brown, 1998). The Southern portion of the county is very tourism friendly due to the Mohican State Park, Pleasant Hill Reservoir and Charles Mill Lake. Predominately the tourism draw is the Mohican Rivers shallow, slow moving water that caters to canoes and rafts. These areas keep the local volunteer fire departments busy with water rescues and other assistance. Due to the climate and weather in the county, these areas are only heavily populated in the summer months. The state parks and marinas in these areas are closed during the winter season which limits public access to the water, but does not entirely prevent it. County wide, the winter months bring ice fishing and snowmobiles to the frozen lakes, rivers and ponds.

The Ashland Fire Department is the only career department in the county, and covers 96 square miles for EMS response and 76 miles for fire response. The primary coverage area of the department does not include the tourism areas mentioned above, but does contain a handful of established recreational open bodies of water. Farm ponds and small private lakes number in the hundreds (Amos, N'Jie, Brown, 1998). Histories of incidents involving ice and cold water have been recorded throughout the county, with human rescues surprisingly outnumbering animal rescues. A specific number of incidents and whether the outcomes would have differed due to rapid rescue are both unknown.

The primary response for water rescue within the county is the Ashland County Sheriffs Office (ACSO) Dive Team. They cover the county and city, and also respond to surrounding counties when requested. The team was established in the 1980's to fulfill the need for "direct contact" rescue and recovery in water incidents. They have the ability to function above and below water. Vehicles and equipment for the team are stored at the ACSO maintenance facility, which is separate from the main ACSO building. When the team is requested, the members must first respond to the maintenance facility to assemble their equipment, thus resulting in a delayed

response to the scene. In a September 13, 2007 interview with ACSO Sergeant Ed Staley, he stated that from notification to arrival on scene, the average response time is thirty minutes (Staley, E. September 13, 2007). Currently the Dive Team has no formal training or application specific equipment used in surface ice rescue. If a surface ice rescue program were to be developed within the Ashland Fire Department, the ACSO has expressed interest in a joint response to incidents involving ice. As mentioned before, the impression is that only two other fire departments in the county and one private organization are equipped, but not trained for an ice rescue.

Due to the fact that the AFD is a full time department, there is little delay between the time of call and when units are en route. AFD has the highest probability to be first on scene of an ice incident within a short period of time; four minutes or less 59% of the time (Ashland Fire Department, 2000-2006).

The potential impact this study could have on the Ashland Fire Department and the community is that having the ability to affect an ice rescue could not only benefit the victim(s), but the rescuers as well. Rapid rescue of victims with the emphasis on rescuer safety could truly mean the difference between life and death.

LITERATURE REVIEW

In researching this topic, it's difficult to find an overwhelming amount of information regarding ice rescue within the fire service. A number of books and articles have been written addressing the "how to" aspect of ice rescue, but the details of establishing and justifying a program are few and far between. The literature review used in the preparation of this research paper included student and instructor manuals, handbooks, journal articles, interviews, fire department and law enforcement records, periodicals, and the World-Wide Web.

Conditions Conducive to Ice

As noted in the Problem Statement and Background and Significance sections of this research paper, the author's study began with statistical information that supported the potential for ice formation. Ashland County's moderate amount of surface water (Amos, N'Jie, Brown, 1998), and its freezing temperatures (Wikipedia, 2007 Annual Averages table), create conditions conducive to ice formation. From January 1st, 2000 to October 1st, 2007, 168 ice rescues have been conducted by fire service organizations within Ohio (National Fire Incident Reporting System, 2007).

Rapid Rescue

A common theme among all information reviewed was that "time is of the essence".

Studies on resuscitation results of near drowning victims indicate that victims are likely to have a poor outcome if they have spent more than ten minutes underwater (Bierens, JJ, Van Der Velde, EA, Van Berkel, M, 2000). In the book, *Surface Ice Rescue* (Hendrick & Zaferes, 1999), the authors state that, not counting actual response time, "A well-trained and well-equipped team should be able to rescue a victim a hundred feet from shore in less than ten minutes from the time of arrival" (p.3).

The physiological affects of cold water on a victim necessitate the need for rapid rescue and are discussed by Tipton and Golden (2006 pp.485-490). They talk about the four sequential stages of the physiological effects of immersion in cold water, and that death can occur at any of the four stages. Stage 1 involves initial skin cooling and the involuntary gasp. Stage 2 is short-term immersion with cooling of superficial nerves and muscles. Stage 3 is long-term immersion with cooling of deep organs (hypothermia). Stage 4 includes post-immersion changes during and after rescue.

The first and immediate stage of cold immersion is characterized by gasping and rapid breathing or hyperventilation as a reflex response to sudden immersion. A victim may aspirate water and die from drowning within five minutes. Occasional victims may die of a reaction by the heart to the sudden impact of cold on the body.

The second stage of cold immersion is characterized by impaired muscle contraction and nerve conduction in the extremities, leading to inability to hold onto an overturned boat or ice shelf, inability to swim, inability to maintain body orientation and inability to self rescue. The victim then aspirates and drowns. This stage has its onset after the victim manages to survive 10-20 minutes.

The third stage of cold immersion is hypothermia, which occurs after prolonged immersion. Cooling of vital organs such as the brain and heart leads to decreasing levels of consciousness, cardiac arrhythmias, and death.

The fourth stage of cold immersion involves collapse during and after rescue. The underlying mechanisms may be cardiovascular or hypoxia from aspiration of water.

“It is believed from experimental and field observations that most deaths in cold water occur from drowning either immediately by submersion of the airways or during the first two stages of cold immersion”.

The greatest chance for successful victim rescue and recovery occurs with a dry drowning. Dry drowning (also known as traumatic asphyxiation) is characterized by the sudden closure of the epiglottis over the larynx. This happens during the first stage of the physiological effects of immersion in cold water as

mentioned above, and the lungs of the victim stay relatively dry. Facilitated by rapid rescue, this coupled with the effects of cold water on the body's vital organs allows a greater chance for resuscitation (Hendrick & Zaferes, 1999).

Identify the Need

The very first step in identifying the need and developing a plan for ice rescue is discussed by Hendrick & Zaferes (1999). Determining how and where incidents occur is the first step in preplanning for a response.

Four critical steps of preplanning are discussed:

1. Review past ice rescue incidents and find the potential ice problem areas in your district.
2. Once the potential sites have been located and marked on maps, determine the potential problems and hazards that might be present.
3. Determine what is required to make ice rescue possible (response, personnel, equipment, etc.).
4. Make all personnel and equipment ready to do the job.

The preplanning process brings the different responding agencies together, resulting in better cooperation and organization during actual incidents. Interagency planning is critical toward ensuring an effective incident outcome. A joint response between a dive rescue team trained in ice diving operations and a surface ice rescue team is encouraged in *Ice Rescue* (Dive Rescue International, 2004)

“A dive rescue team trained to perform ice diving operations should be called to respond with the ice rescue team. If a victim has slipped below the surface of the water, or if additional victims are in the water that were not reported, a dive team can then assist in the rescue” (p.18).

Training

Training requirements and equipment selection are the next steps according to (Hendrick & Zaferes, 1999). “For a department in the process of developing an ice rescue team, it's best to train the members first

before making significant equipment purchases. Good training will prevent teams from wasting precious funds on equipment that will be superfluous, that is inappropriate, or that isn't worth the cost." (p.52)

The regulatory agency for many aspects of the fire service is the National Fire Protection Agency. Standards for performing technical rescue have been established in NFPA 1670, Operations and Training for Technical Rescue Incidents (1999, p.1-62). Ice rescue falls into the technical rescue category and is addressed in this standard.

NFPA 1670, (1999, p. 10) states that the Authority Having Jurisdiction (AHJ) shall establish written procedures consistent with one of three operational levels, awareness, operations, or technician. Awareness level is the minimum capability and allows rescuers to recognize the hazards of technical rescue. Operations level represents the capability of recognition, equipment use, and techniques to support and participate in technical rescue operations.....but usually operations are carried out under the supervision of technician-level personnel" (p.14). Technician level allows rescuers to coordinate, perform, and supervise a technical rescue incident.

Technician-level functions, specifically at ice rescue incidents are addressed in Chapter 7 of NFPA 1670 (1999, p17). It states that technicians are responsible for the implementation and development of procedures relating to the following:

- Procedures for self-rescue unique to ice rescue
- Procedures for the use of specialty equipment unique to ice rescue
- Procedures for the "reach, throw, row, and go" technique unique to ice rescue

Chapter 1 of NFPA 1670 (1999) defines "reach, throw, row, and go" as the four sequential steps in water or ice rescue with progressively more risk to the rescuer. Specifically a "go" rescue involves physically entering the medium (e.g. in the water or on the ice). Technician level rescuers are the only rescuers that should enter the medium to attempt a rescue. "If shore operations aren't feasible for the incident at hand, if shore

operations have failed, or if the victim is passive or submerging, then the rescue must immediately move to “go” status” (Hendrick & Zaferes, 1999, p.103).

Ensuring the response of an adequate number of rescuers is stressed by Phil Turnbull (Turnbull & Turnbull, 2007). “There should be enough trained and equipped personnel to handle a water (ice) incident on every shift every day of the year.”

Fire departments in the great lakes region have access to training by United States Coast Guard (USCG) according to Paul Fawcett of the USCG (Fawcett, 2007). A program based at the USCG station in Saginaw, Michigan allows fire departments to borrow instructors for short-term ice rescue training from local USCG units that perform ice rescue operations.

Other options for training include sending one or two instructors from a department to a “train the trainer class”, or have an organization train individuals in house. Dive Rescue International (DRI) is an organization that has been training public safety professionals since 1977. They offer both “train the trainer” and in house training. A “train the trainer class” is a class tailored to certified fire instructors that will receive initial ice rescue training and take what they have learned back to their respective organizations and teach those within that organization. DRI has trained over 1,500 trainers since their inception (Dive Rescue International, 2007).

Costs Involved

Equipment:

A team can be fully dressed for Technician Level surface ice rescue with a budget of \$3,000 to \$4,000. (Hendrick & Zaferes, 1999, p.64).

This will provide:

- Three Personal Flotation Devices’
- Three ice rescue suits

- One ice rescue board
- Rescue flotation slings
- Three 250-foot ropes
- Two 75-foot rescue rope throw bags
- One quick release strap

Training:

The cost of sending an individual to a train the trainer program through DRI is \$400.00 per person. This cost does not include airfare or lodging (Dive Rescue International, 2007). It should be noted that classes taught by DRI are held in Colorado or Montana due to weather conditions conducive to ice.

A quote to have an outside agency train 35 to 40 members of AFD in house was \$2,500. This included four instructors and two days of class instruction (See Appendix 3). Overtime would be incurred by off duty personnel participating in a class of this nature (City of Ashland, Ohio, 2004). At the minimum, twenty two personnel would be receiving their respective overtime rate for the two days of class.

Annual training to maintain certification would incur an additional cost.

Cincurak (2004) sums it up best,

“Having a standard operating procedure and trained personnel in place when someone falls through the ice can be the difference between a rescue and a recovery.....fire departments will be called to perform these rescues whether they are trained or not (p. 1).

PROCEDURES

The initial research for this Applied Research Project was conducted by searching on the Internet for articles in journals, periodicals, instruction manuals, and Websites that address the subject of surface ice rescue. The library at Ashland University was used for research on the medical effects of cold water on humans. The National Fire Academy's (NFA) Learning Resource Center (LRC) was also utilized. Interviews with other agencies and organizations including the ACSO, Ohio Department of Natural Resources (ODNR), and organizations that train fire personnel in technical rescue were conducted. Documents from the AFD including Annual Reports and current Standard Operating Procedures (SOP's) were reviewed as well.

A survey was distributed to the fire chief's of every department within Ashland County. Eleven departments were surveyed including the AFD. The survey had a total of seven closed-ended questions, and asked about the number of ice related incidents their department has had in the last ten years and if their department has ice rescue equipment or procedures in place. Three Assistant Chiefs within the AFD were asked to review the questions and act as test subjects.

The survey was conducted during the month of November, 2007. The surveys along with a cover letter explaining why the survey was being conducted were mailed to that respective chief's department address. A self addressed and postage stamped envelope was included to facilitate its return. A copy of this survey is in Appendix 3 of this study.

The end result is a list of recommendations that will be submitted for review by the officers and line personnel of the Ashland Fire Department and the agencies participating in this study.

Limitations of the Study

Factors that could alter the results of this study include one of more survey participants giving deceptive responses. It should be noted that very little research has been conducted on the topic of establishing surface ice

rescue within an organization. As such, the findings of a few individuals have set the standard for rescue organizations nationwide.

RESULTS

The results of this research study were compiled after the review of data found on the Internet, articles in journals, periodicals, instruction manuals, and Websites that address the subject of surface ice rescue. The library at Ashland University was utilized for research on the medical effects of cold water on humans, as was the National Fire Academy's (NFA) Learning Resource Center (LRC). Documents from the AFD including Annual Reports and current Standard Operating Procedures (SOP's) were reviewed as well.

Interviews with other agencies and organizations including the ACSO, Ohio Department of Natural Resources (ODNR), and organizations that train fire personnel in technical rescue were conducted.

As mentioned earlier, a survey was distributed to the fire chief of every department within Ashland County. Eleven departments were surveyed including the AFD. The survey had a total of seven closed-ended questions. The results of the survey were anonymous. Three Assistant Chiefs within the AFD were asked to review the questions and act as test subjects. The survey asked participants how many responses their respective department has had in the last ten years for an animal that has fallen through the ice, for a person or vehicle that has fallen through the ice, if their department has equipment or training for surface ice rescue, if plans or procedures are in place for an ice rescue, and who they would utilize for assistance if they responded to an ice incident. Nine of eleven, or eighty-two percent, of the surveys distributed were received back. The results are based on responses given.

Thirty-three percent, or three of nine, of the departments surveyed have had an animal fall through the ice in the past ten years (see Table 1, Appendix 2). However fifty-five percent, or five of nine, have had a

vehicle or person through the ice in that same time period. When questioned on their department's preparedness, sixty-six percent, or six of nine, do not have equipment for surface ice rescue, and only twenty-two percent, or two of nine, have training or procedures in place for ice rescue. As to whom departments that were not prepared for ice rescue would call in a time of need, four departments, or forty-four percent, indicated they would call the ACSO Dive Team. Twenty-two percent, or two of nine, stated they would call mutual aid from another fire department, three out of nine, or thirty-three percent, stated they would request both the ACSO and another fire department. An overwhelming eighty-eight percent, or eight of nine, responded that they would utilize a readily available mutual aid ice rescue team.

Question One

What is the frequency and potential of ice related incidents in Ashland County?

According to the Water Resources of Ashland County (Amos, N'Jie, Brown, 1998), Ashland County's water acreage consist of approximately 1,438 acres of lakes, roughly 291 linear miles of major streams and rivers and farm ponds number in the thousands. Annually, Northern Ohio has 127 days at or below freezing temperatures (Wikipedia, 2007 Annual Averages table).

From January 1st, 2000 to October 1st, 2007, 168 ice rescues have been conducted by fire service organizations within Ohio (National Fire Incident Reporting System, 2007). Also, survey results indicate that thirty-three percent, or three of nine, of departments have had an animal fall through the ice and five, or fifty-five percent, have had a person or vehicle involved in an ice related incident.

Question Two

What programs or policies regarding surface ice rescue are implemented at fire departments within Ashland County?

When asked if their department has procedures or guidelines in place to conduct a surface ice rescue, seventy-seven percent, or seven of nine, respondents answered "no". In addition, thirty-three percent, or three of

nine, stated they have equipment, but only two departments, or twenty-two percent, have members that are trained in surface ice rescue.

As mentioned earlier in this paper, the primary response for water rescue within the county is the ACSO Dive Team. They cover the county and city, and also respond to surrounding counties when requested. Currently the Dive Team has no formal training or application specific equipment used in surface ice rescue, and they have expressed interest in a joint response between a surface ice rescue team and the Dive Team (Staley, E. September.13, 2007). This is stressed in *Ice Rescue* (Dive Rescue International, 2007)

“A dive rescue team trained to perform ice diving operations should be called to respond with the ice rescue team. If a victim has slipped below the surface of the water, or if additional victims are in the water that were not reported, a dive team can then assist in the rescue” (p.18).

Question Three

What are the training requirements and costs involved for establishing a surface ice rescue program?

Training

“For a department in the process of developing an ice rescue team, it’s best to train the members first before making significant equipment purchases. Good training will prevent teams from wasting precious funds on equipment that will be superfluous, that is inappropriate, or that isn’t worth the cost.” (Hendrick & Zaferes, 1999, p.52)

The regulatory agency for many aspects of the fire service is the National Fire Protection Agency (NFPA). Standards for performing technical rescue have been established in NFPA 1670, Operations and Training for Technical Rescue Incidents (1999, p.1-62). Ice rescue falls into the technical rescue category and is addressed in this standard. Three training levels exist that are also discussed by NFPA 1670. It states that the Authority Having Jurisdiction (AHJ) shall establish written procedures consistent with one of three operational

levels, awareness, operations, or technician (1999, p. 10). Technician level allows rescuers to coordinate, perform, and supervise a technical rescue incident (p.14).

Chapter 1 of NFPA 1670 (1999) defines “reach, throw, row, and go” as the four sequential steps in water or ice rescue with progressively more risk to the rescuer. Specifically a “go” rescue involves physically entering the medium (e.g. in the water or on the ice). Technician level rescuers are the only rescuers that should enter the medium to attempt a rescue. “If shore operations aren’t feasible for the incident at hand, if shore operations have failed, or if the victim is passive or submerging, then the rescue must immediately move to “go” status” (Hendrick & Zaferes, 1999, p.103).

Fire departments in the great lakes region have access to training by United States Coast Guard (USCG) according to Paul Fawcett of the USCG (Fawcett, 2007). A program based at the USCG station in Saginaw, Michigan allows fire departments to borrow instructors for short-term ice rescue training from local USCG units that perform ice rescue operations.

Other options for training include sending one or two individuals from a department to a “train the trainer class”, or have an organization train individuals in house. Dive Rescue International (DRI) is an organization that has been training public safety professionals since 1977. They offer both “train the trainer” and in house training. A “train the trainer class” is a class tailored to certified fire instructors that will receive initial ice rescue training and take what they have learned back to their respective organizations and teach those within that organization. DRI has trained over 1,500 trainers since their inception (Dive Rescue International, 2007)

Costs Involved

Equipment:

A team can be fully dressed for Technician Level surface ice rescue with a budget of \$3,000 to \$4,000. (Hendrick & Zaferes, 1999, p.64).

This will provide:

- Three Personal Flotation Devices'
- Three ice rescue suits
- One ice rescue board
- Rescue flotation slings
- Three 250-foot ropes
- Two 75-foot rescue rope throw bags
- One quick release strap

Training:

The cost of sending an individual to a train the trainer program through DRI is \$400 per person. This cost does not include airfare or lodging (Dive Rescue International, 2007). It should be noted that classes taught by DRI are held in Colorado or Montana due to weather conditions conducive to ice.

A quote to have an outside agency come to train 35 to 40 members of AFD in house was \$2,500. This included four instructors and two days of class instruction (See Appendix 3). Overtime would be incurred by off duty personnel participating in a class of this nature (City of Ashland, Ohio, 2004). At the minimum, twenty two personnel would be receiving their respective overtime rate for the two days of class.

Annual training to maintain certification would incur an additional cost.

DISCUSSION

Few people can argue the benefit of having a well prepared, trained and equipped surface ice rescue team in there community. The Literature Review supports this fact, and results from this research support this claim as well. Survey results indicate that incidents involving ice have a history of occurring in the county, and fire departments throughout the county are ill prepared, trained and equipped for such a rescue. Cincurak (2004) states that “Having a standard operating procedure and trained personnel in place when someone falls through the ice can be the difference between a rescue and a recovery.....fire departments will be called to perform these rescues whether they are trained or not (p. 1).

Question One

What is the frequency and potential of ice related incidents in Ashland County?

According to the Water Resources of Ashland County (Amos, N’Jie, Brown, 1998), Ashland County’s water acreage consist of approximately 1,438 acres of lakes, roughly 291 linear miles of major streams and rivers and farm ponds number in the thousands. Annually, Northern Ohio has 127 days at or below freezing temperatures (Wikipedia, 2007 Annual Averages table). The amount of surface water in the county is significant. This combined with long winters and below freezing temperatures certainly provides conditions for ice to form.

The AFD’s primary coverage area does not include the majority of the surface water mentioned above. A small number of recreational ponds and a handful of farm ponds are within our jurisdiction. The small amount of water in our area does not exempt us from an ice rescue and as covered earlier in this paper, in 2006, the AFD was utilized for mutual aid to assist departments within Ashland County 101 times (Ashland Fire Department, 2006).

From January 1st, 2000 to October 1st, 2007, 168 ice rescues have been conducted by fire service organizations within Ohio (National Fire Incident Reporting System, 2007). Survey results support this with

departments in Ashland County reporting thirty-three percent, or three of nine, have had an animal fall through the ice and five, or fifty-five percent, have had a person or vehicle involved in an ice related incident.

Question Two

What programs or policies regarding surface ice rescue are implemented at fire departments within Ashland County?

As mentioned in the Background and Significance section of this paper, the AFD was under the impression that two county fire departments were equipped for, but not trained in surface ice rescue. When asked if their department has procedures or guidelines in place to conduct a surface ice rescue, seventy-seven percent, or seven of nine, respondents answered “no”. In addition, thirty-three percent, or three of nine, stated they have equipment, but only two departments, or twenty-two percent, have members that are trained in surface ice rescue.

Nine of the eleven surveys distributed were returned. Unfortunately, with two departments’ information lacking, this does not provide a true representation of the county’s preparedness for surface ice rescue. Despite this, the survey results were surprising and pleasing. Three of the nine departments stated they have equipment, and two of the nine stated they have training. This is greater than the previous impression of only two departments having equipment and no training.

Another unfortunate aspect of the survey was that it was anonymous. This may have helped with the return rate, but provided me with no contact information. Additional research would be needed to get specific information from each department. A county wide approach to ice rescue seems to be the logical choice. All research points to rapid rescue and adequate manpower response. The practice of multiple departments responding to an incident would increase the likelihood that the above happens. Ensuring the response of an adequate number of rescuers is stressed by Phil Turnbull (Turnbull & Turnbull, 2006). “There should be enough trained and equipped personnel to handle a water (ice) incident on every shift every day of the year.”

Question Three

What are the training requirements and costs involved for establishing a surface ice rescue program?

Standards for performing technical rescue have been established in NFPA 1670, Operations and Training for Technical Rescue Incidents (1999, p.1-62). Ice rescue falls into the technical rescue category and is addressed in this standard. The AFD is familiar with NFPA 1670, and attempts to follow this standard in our existing technical rescue capabilities. As to what level of training is needed to conduct surface ice rescue, is answered in Chapter 1 of NFPA 1670 (1999). It defines “reach, throw, row, and go” as the four sequential steps in water or ice rescue with progressively more risk to the rescuer. Specifically a “go” rescue involves physically entering the medium (e.g. in the water or on the ice). **Technician level rescuers are the only rescuers that should enter the medium to attempt a rescue.**

Due to lack of incidents and the small amount of water in our coverage area, the AFD has not adequately prepared itself to respond to water or ice incidents and is currently only able to conduct shore based rescue attempts. If an ice rescue program were developed, research indicates that technician level training would be a must.

Options for training include sending one or two certified fire instructors from a department to a “train the trainer class”, or have an organization come train individuals in house. A “train the trainer class” is a class tailored to individuals that will receive initial training and take what they have learned back to their respective organizations and teach those within that organization. A benefit to in house training is the opportunity for more thorough instruction from experienced instructors. A “train the trainer” course may benefit the county in the fact that multiple departments can be trained by these individuals as departments’ schedule allows. This means they would not be limited to a one time training opportunity.

Cost involved in both training personnel and equipment acquisition is notably the biggest obstacle. Funding is an issue within fire departments all over the nation. Ashland County is no exception. A quote to have

an outside agency come to train 35 to 40 members of AFD in house was \$2,500 (See Appendix 3). Overtime would be incurred by off duty personnel participating in a class of this nature (City of Ashland, Ohio, 2004). At the minimum, twenty two personnel would be receiving their respective overtime rate for the two days of class. The overtime amount would be equal to if not greater than the fee charged by the teaching organization.

The cost of sending an individual to a train the trainer program through DRI is \$400 per person. This cost does not include airfare or lodging (Dive Rescue International, 2007). This method of acquiring training may prove to be more economical in the sense that overtime cost for the AFD can be reduced, and education for the county departments can be provided for little or no cost.

Hendrick & Zaferes (1999, p.64), states that a team can be fully equipped for Technician Level surface ice rescue with a budget of \$3,000 to \$4,000. Exposure suits account for the majority of the cost involved in equipping a team. A benefit to a structured response from multiple organizations to an incident is the reduction in equipment each entity needs to purchase.

RECOMMENDATIONS

The Ashland Fire Department is well trained in many facets of emergency response; unfortunately the department is not adequately prepared for incidents involving ice. The problem this study addresses is that despite the significant amount of water in the county, the inherent freezing temperatures, and the possibility of assisting neighboring departments in technical rescue operations, the Ashland Fire Department lacks formal training and necessary equipment to handle a surface ice rescue.

Based on the research gathered from this study, the following recommendations include:

- It is recommended that further research be done to ascertain specifically which volunteer departments in the county are trained in surface ice rescue, and these departments' capabilities. These departments may be able to provide a wealth of knowledge on the subject and assist in

future program development.

- It is recommended that the AFD send one or two instructors to a train the trainer program for surface ice rescue. This will provide a starting point to establishing a program within the department. These individuals will be able to provide understanding of the discipline, direction, and eventually training to members of the AFD.
- It is recommended that further research be done of other fire departments that have established surface ice rescue programs. This may provide a model to follow and prevent costly mistakes.
- It is recommended the Department work closely with the ACSO Dive Team to increase its knowledge of the water hazards in its primary coverage area, as well as the county.
- It is recommended that further research be done, and the effort put forth to establish not only a multi jurisdictional response to incidents involving ice, but ultimately a county wide approach to all water incidents.

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APPENDIX 2 – SURVEY RESULTS

Table 1

Survey Results

1.) Calls for an animal through the ice?

None (6) 66 % 1 to 3 (3) 33% 4 to 6 (0) 7 to 9 (0) Other (0)

2.) Calls for a person or vehicle through the ice?

None (4) 44% 1 to 3 (5) 55% 4 to 6 (0) 7 to 9 (0) Other (0)

3.) Does your dept. have ice rescue equipment?

Yes (3) 33 % No (6) 66 %

4.) Does your dept. have personnel trained in ice rescue?

Yes (2) 22 % No (7) 77 %

5.) Does your dept. have SOP's to conduct surface ice rescue?

Yes (2) 22 % No (7) 77 %

6.) If "no" answered to Q5, who would your dept. contact for ice rescue assistance?

Mutual Aid (2) 22 % Dive Team (4) 44 % Unknown (0)

7.) Would your dept. utilize a mutual aid ice rescue team?

Yes (8) 88 % No (1) 11%

APPENDIX 3 – QUOTE

Technical Rescue Solutions

3723 Myersville Road
 Uniontown Ohio, 44685
 330-714-7696

Quote #2007-34

Customer	
Name	<u>Attention: Gabe Campbell</u>
E-Mail	_____
City	_____
Phone	_____

Date	<u>Open Quote</u>
Order No.	_____
Rep	_____
FOB	_____

Qty	Description	Unit Price	Total
1	<p>Surface Ice Rescue Course for 35-40 Students</p> <p>2 day course – 16 hours of instruction</p> <p>Day 1 consists of lecture – approx. 3-4 hours With afternoon hands on training</p> <p>Day 2 consists of hands on training with afternoon scenarios</p> <p>Class dates will be dependent on weather</p> <p>4 Instructors included in quote</p> <p>(4 suits available – may consider rental suits for this course to accommodate number of participants)</p>	\$2,500.00	\$2,500.00